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Multiple social contexts of education: systematic commonalities, differences and interrelations

Steffen Hillmert

Abstract

Analyses of social contexts are almost universal in social research. In many cases, however, they are not explicitly labelled or even recognized as such. The conceptual aspect of 'context' then remains implicit in the substantive research question—such as when investigating the effects of 'social background' as a characteristic of an individual's parental or family context. Systematic commonalities can be found among various analyses that either implicitly or explicitly deal with social contexts and their relevance for education. This article presents a formal classification of relevant contexts and their effects on education, discusses common methodological issues of contextual analyses and gives a brief survey of important findings in relevant research areas—in particular, family effects, peer effects, school effects and effects that can be associated with larger socio-economic contexts and institutional systems.

Keywords

Educational contexts; context effects; family; peers; school; spatial context; institutional context

1. Introduction

The idea that individuals are embedded in social contexts that have more or less continuous influence on their lives is central to sociological reasoning. This means that, theoretically speaking, the relevance of social contexts for an individual and their impact on the individual's behaviour are very comprehensive. One could even go so far as to regard the whole individual life course as the interactive result of (only) two components: first, antecedent individual genetic dispositions, and second, the additive and cumulative effects of all the relevant contexts that the individual is embedded in throughout the life course. The term 'social context' may, therefore, refer to a broad spectrum of social entities such as families, friendship networks, institutions or political economies. Such a broad scope also applies to questions of contexts in the study of education. Nowadays, it is not unusual to add informational contexts such as digital environments to this list.

In some remarkable contrast to this ubiquity of social contexts, explicit analyses are visible in the sociology of education but are far from being universal. The term 'analysis of social contexts' is often used more specifically. First, it typically refers to the *impact* of social contexts (context effects). Second, analyses tend to look at the additional impact of living conditions beyond both the family and educational institutions. In particular, in recent years, geographically defined contexts and their implications for individual life chances have received increasing attention. In not only educational research but also in other academic disciplines as well as among the public, there has been renewed, empirically driven interest in the relevance of space and location for individual behaviour and life chances (Logan 2012; Sampson 2013). Other social contexts are often not recognized, or at least labelled, as contexts. The context aspect then remains implicit in the substantive question, for example, when investigating the effects of social background—which is a characteristic of the parental or family context. Many of these effects are discussed in detail in other parts of this book. However, important commonalities can be found in various analyses that either explicitly or implicitly deal with social contexts. This justifies a systematic compilation as it is presented in this contribution, which sets forth a formal classification of relevant contexts and their effects, discusses common methodological issues of context analyses and gives a brief survey of important findings in the various research areas—in particular family effects, peer effects, school effects and effects that can be associated with larger socio-economic contexts and institutional systems. The final section draws some conclusions for empirical research.

2. Types of contexts and their links to individuals

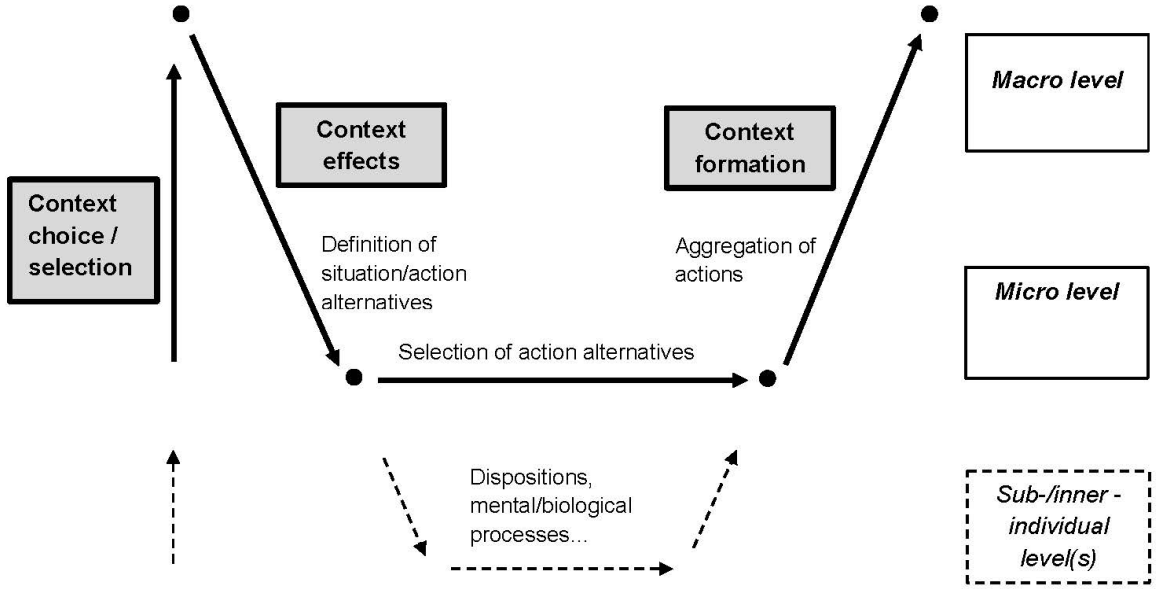
In a conceptual framework, social contexts can be located on analytical levels that are on a higher, more aggregated level than individual actions (supra-individual), whereas inner-individual dispositions of actions, mental states, biological processes or physical processes that are involved in actions can be placed on lower, more disaggregated levels (Figure 1a). This does not rule out that the notion of context is also used for inner-individual processes, especially in the psychological literature (psychological contexts of actions). Both supra- and sub-individual explanatory factors have received increasing attention in the social sciences in recent years.

Scientific explanations often connect various analytical levels of reality. In the standard macro-micro-macro model of sociological explanation (Coleman 1987), social contexts play a crucial role at two stages: first, as macro-level influences on individual situations (context *effects*), and second, as the result of an aggregation of individuals' behaviours (context *formation*). The latter represents often unintended consequences of individual actions (Schelling 1978). A dynamic or life-course perspective adds a third important aspect: (active) individual context *choices*—or (passive) selection into particular contexts, which may, in the aftermath, exert influences on the individual actors. Again, this dimension of choice/selection

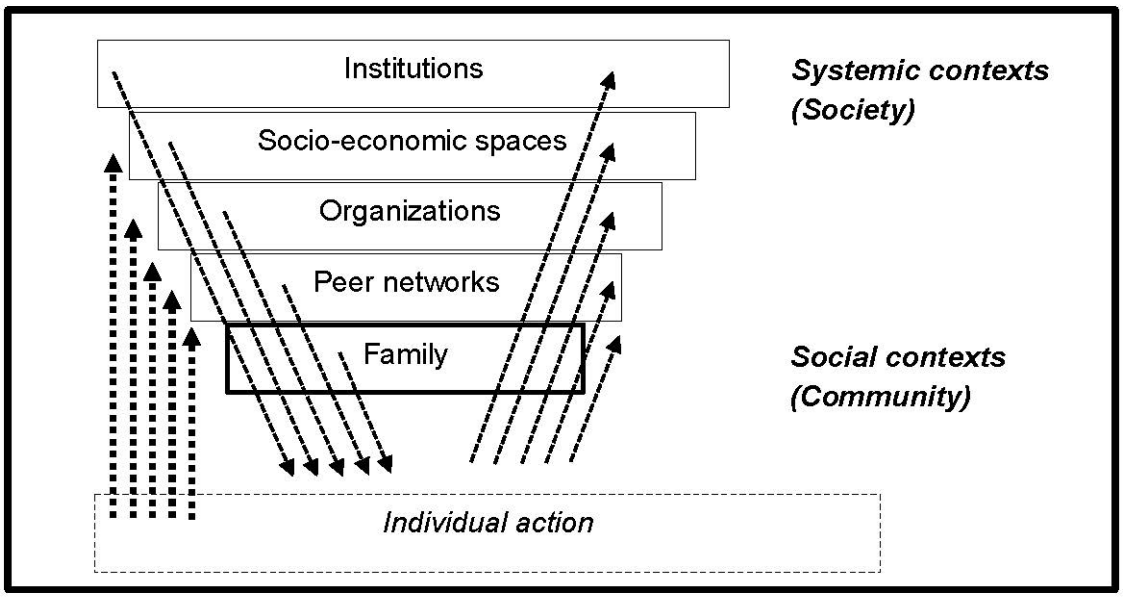
refers to a broad spectrum of issues, including partnership and friendship formation, school choice and migration.

Figure 1:

a) Contexts in the model of sociological explanation



b) Context layers



The socio-ecological perspective has stressed that individuals are typically located in multiple contexts simultaneously, each of which are essential for their socialization and favourable development (Bronfenbrenner 1979). However, contexts also represent and foster inequality. Certain distributions of positions result in specific opportunity structures and constraints, and physical as well as social proximity makes social relations more likely (Blau 1994). Not only are social contexts manifold, but they also have different extensions. It might, therefore, be more appropriate to speak of different hierarchical levels or layers of contexts which can also be placed into the general model of sociological explanation (cf. Figure 1b). Drawing upon classical sociological distinctions, we can ideal-typically distinguish between various forms of social associations with different goals, scope or intensity. At one end of the ideal-typical spectrum, there are micro-level, small-scale social contexts, which are defined by close interactions and communication between individuals who know each other personally and who have emotional bonds. Such contexts are associated with notions that refer to immediate social contact, such as *Gemeinschaft* ('community'; cf. Tönnies [1887] 2010) and 'social integration' (Lockwood 1964; Giddens 1984). Typical examples are families and friendship networks. At the other end of the spectrum, there are macro-level social contexts associated with notions referring to greater social distances, such as *Gesellschaft* ('society') or 'system integration'. These contexts are characterized by anonymous actors and rational transactions. Typical examples are systems of institutionalized rules and markets. Such systemic contexts are often expressed in abstract aggregate terms—like 'the economy' or 'socio-economic conditions'—although they are also the result of social action. In many cases they could, theoretically, be disaggregated into their constituent elements, though this would often be too complex to be feasible.

Different contexts are also intertwined in complex ways. In particular, they can be linked in hierarchical structures. For example, school classes as contexts are located in schools as contexts, which are parts of educational systems, and the effects of one context level may be mediated by contexts at another level. Moderation or interaction between context levels occurs when the relevance of context conditions at one level depends on context conditions at another level. For example, family characteristics may be more important in some school systems than in other school systems. Various social contexts may also work as mediators or moderators in the aggregation of individual actions and their consequences. Adding another level of complexity, contexts may also themselves be social actors who are responsible for selecting individuals in other contexts, which may exert their own effects.

These conceptual aspects apply, in principle, to all contexts of educational behaviour, but they also indicate that the family of origin is special as a social context in a number of respects. First, there is usually no (individual) self-selection into this context. Second, exposure to this context is typically persistent and intense. With its links to genetics and intergenerational transfers of resources from the beginning of the life course, the family context even transcends the analytical distinction between individual dispositions and context influences. Finally, by means of parental decisions, this context may also be responsible for selecting individuals into many other relevant contexts (schools, neighbourhoods), which have their own impacts on individual educational development. It is, therefore, no surprise that family-related analyses are of particular importance in educational research, and family influences are known to be significant.

3. Methodological issues

3.1 Relevance and attributes of contexts

There are two major research strategies in the analysis of context effects. The first is to assess the total relevance of all contexts or of only specific contexts, and the second looks for explanations for this relevance. The former strategy is primarily descriptive, and

decomposition techniques or similar methods can be applied to assess how much variation in education can be attributed to contexts in general or to specific context levels. Studies in the second line of research look at potential mechanisms by which contexts and their conditions become relevant for actions. However, the variety of research strategies tends to go along with a lack of conceptual clarity in the use of causal terminology. While the explanatory strategy typically follows the conventional view and localizes causes in the *attributes* of contexts, meaning in variables and their variation (impacts *at* specific context levels), it is not uncommon in descriptive studies to speak about contexts themselves as causes (the impact *of* specific context levels, such as if a particular outcome is due to the school or the neighbourhood). A similar lack of definition applies to the term 'historical context', which essentially refers to certain attributes of specific (substantive) contexts at particular points in time and should, therefore, not be regarded as an *alternative* to substantive contexts.

The classical example of a simple assessment of context relevance is the debate about nature versus nurture. The perhaps most general design in this line of research is represented by twin studies, which have been conducted to assess the relative importance of contexts versus genetic predispositions for education (Sacerdote 2011a). The samples typically consist of pairs of both monozygotic and (same-sex) dizygotic twins. A higher degree of behavioural similarity between monozygotic twins is attributed to genetics, and variation in outcome can be decomposed into the effects of genetics, common (family-level) effects and unique environmental effects that can be attributed to individual life events. Based on such studies, estimates of heritability and largely inverse environmental influences in numerous dimensions of educational achievement vary considerably but fluctuate around at least one-half (Shakeshaft et al. 2013; de Zeeuw et al. 2015; Ayorech et al. 2017). Such results show not only considerable international, inter-group and age variation, but they are also based upon critical assumptions, meaning that environments in various sibling constellations are equally dissimilar (Scarr 1968) or that environments are necessarily independent of genetic dispositions (Vinkhuyzen et al. 2010). Moreover, the generalizability of twin studies has been called into question because twins are not a representative sample of the whole population. Rather than showing the heritability of individual traits in general, twin studies are seen today as a useful tool for controlling against possible selection bias in any study of the causal effects of environmental circumstances (Johnson et al. 2010). In studies of environmental effects on the epigenome, the strict distinction between genetic disposition and environmental factor gets blurred (Karlsson Linnér et al. 2017).

The so-called Scarr–Rowe hypothesis proposes a positive interaction between socio-economic status and genetic influences on cognitive ability and academic achievement (Scarr-Salapatek 1971; Rowe et al. 1999). However, a meta-analysis suggests that this moderation itself varies with the national context (Tucker-Drob and Bates 2016). In any case, estimates of genetic family influences depend on higher-level context characteristics such as institutional and economic conditions. For example, in more egalitarian societies with lower social barriers to education, one would expect, in general, a comparatively *greater* relevance of genetic differences (cf. Norwegian study by Lyngstad et al. 2018). This resembles early theoretical statements made about highly meritocratic societies (Young 1958). Note that general conclusions from variation-based results need to be taken with care; the results do *not* question the relevance of contexts in general but, rather, emphasize the importance of specific context levels—in this case, national or institutional contexts—which enable particular dispositions to translate into a variation in outcomes.

3.2 Temporal and spatial aspects

Although very important in theory, aspects of time and space often receive little attention in practical context research. For example, only a few studies account for the time of individual exposure to the contexts whose effects are analysed. This is remarkable because many

context effects plausibly form and develop only over time. Note that relevant exposure is not necessarily limited to the individual life course. Rather, it may refer to more than one family generation. For example, long-term resident families may be affected by specific neighbourhood conditions across multiple generations. Analyses that focus only on children may, therefore, underestimate the magnitude of neighbourhood effects—particularly when they also control for parental characteristics which have already been influenced by the neighbourhood characteristics (Wodtke et al. 2011).

Another temporal aspect is historical change in context conditions. It is not only individuals within contexts but also the contexts themselves that have specific developments over time, and the degree of inequality in conditions among a set of contexts may vary considerably across that time span. It is a nontrivial task to account for these developments when assessing contextual effects. For example, using de-trended indicators or parts from a decomposition are often more appropriate for operationalizing theories of context effects than the common use of the raw values when matching context variables to individual-level data (Hillmert et al. 2017a). Otherwise, associations between the secular trends that can be found in many socio-economic context variables are likely to be incorrectly attributed to the effects of short-term changes or regional variation. While time-series analysis is an established field in statistics and is routinely used when contexts are themselves the objects of study, insights from this field are rarely transferred to applied research about the influences that contexts have on individuals.

Similar and interrelated problems in context research apply to aspects of space. Though well known in geographical research—in particular in the form of the 'modifiable areal unit problem' (Openshaw 1983; Kwan 2012)—the choice of aggregation level in applied context research often remains implicit or is based on pragmatic considerations of data availability. Adequate geographical scaling of contexts requires a theory of its own. Crucial elements of such a theory are the relevance of opportunities or social contacts within the individuals' action radius and the corresponding distribution of opportunities or populations, and it turns out that there is no general conclusion whether local context effects can be expected at particularly small or larger scales, even when accepting the general idea that the relevance of contacts tends to decrease with distance (Hillmert 2018). Rather, context effects have specific spatial patterns. This means that, in practice, spatial context effects may not be identified solely for the reason that context information is considered on an inadequate scale. Also, note that there may be considerable heterogeneity and variability in these context effects. Not all individuals are affected by contexts in the same way, and differences may appear in not just different effect sizes but also in group-specific temporal and spatial patterns, meaning that individuals and social groups may differ in their temporal (biographical) phases and in the relevant areas in which they are affected by context conditions. A uniform model of context effects for the whole sample may, therefore, be unable to map the relevant effects adequately. Moreover, relevant context definitions may depend on specific situations, reflecting the fact that the social actors may adapt their action spaces in reaction to context conditions.

3.3 Context choices and distinction among context levels

A central conceptual problem in context research is distinguishing context *effects* from systematic context *choices* or *(self-)selection* into contexts. While it may look compelling to directly infer causal context effects from correlations between context conditions and individual behaviour, these associations may just as well be the result of residential context decisions that co-vary systematically with these behavioural traits. Only a few studies have been able to make use of a field experiment design that supports causal conclusions, such as in the large-scale *Moving to Opportunity* programme (e.g. Kling et al. 2007; Sampson 2012).

The identification of context effects at a particular level requires a clear distinction of these effects from the effects of other context levels. It is, therefore, essential to study multiple contexts simultaneously (Cook 2003). In practice, respective controls are often not fully applied or are not possible because the necessary data is not available at all relevant levels. Hence, specific context effects are likely to be overestimated. For example, estimated school effects may be, in part, effects of the neighbourhood in which the school is located. Families and neighbourhoods are closely intertwined as contexts that extend across even generations (Sharkey and Elwert 2011). However, the problem of distinguishing between different contexts goes beyond the technical aspects of data availability and statistical control. This becomes clear when considering the respective causal mechanisms and their temporal structures. It may then turn out that particular context effects are also likely to be underestimated. For example, the selection of a particular school or residential area may have been a family choice, but the consequences of the conditions experienced there are typically not attributed to the family.

3.4 Data sources and alternative analytical approaches

A variety of methodological approaches have been developed to study the effects of social contexts, but with different origins and often with little reference to each other, and again, not all of them are explicitly labelled as social context analyses.

Perhaps the most common implicit approach to studying context effects is the use of standard regression models. Standard surveys typically use population-based samples and often contain only one respondent per family. Moreover, they usually contain either only rudimentary or no information on small-scale or intermediate contexts beyond the close family, such as schools or neighbourhoods. Therefore, simple regression models are still the standard approach for analysing the impact of (family) contexts in the sense of social origin effects. Large-scale individual-level data are also often rather limited with regard to the spatial references that are available to researchers. However, even some proxy information on geographical contexts could potentially improve the quality of results (Hillmert et al. 2017b). The possibility of matching survey data with adequate external context data offers a wide range of analytical possibilities and has become increasingly popular. Such matching is usually done on the basis of standard codes from specific regional classification systems, and context data from official statistics and other sources are often available at different levels of regional aggregation.

Studies that focus by design on specific contexts (families, schools) typically collect detailed empirical information on this level. In particular, many studies in educational research—including large-scale assessments such as PISA—use school-based samples. Consequently, multilevel models (Blalock 1984; Goldstein 1987) have become a standard procedure for analysing such data. Linked with mechanism-based or dynamic perspectives are statistical analyses that establish indirect as well as direct relationships between context factors and student outcomes, allowing for potentially complex relationships among these context factors. Structural equation models (SEM) represent a common approach here. However, given the considerable problems of selection and endogeneity or simultaneity in analyses of contextual effects (see also the next section), researchers have increasingly looked for exogenous sources of variance to draw more robust inferences about contextual influences using natural and quasi experiments, instrumental variables and other similar designs and methods.

Alternative approaches for modelling social contexts are social network analyses and spatial models. Both are particularly appropriate when the contexts can be disaggregated into their elements, although these approaches are then often not referred to as analyses of ‘social contexts’. However, there is increasing awareness about commonalities in various relational analyses (Glückler and Doreian 2016).

4. Research on specific context effects

In spite of various analytical problems as described in the previous section, there is a level of cumulative knowledge in various areas of context research. This section presents a selective overview of some common results of context-related research in education with a focus on context effects. Following the conceptual section above, the presentation starts with smaller-scale, micro-social contexts and moves on to larger-scale socio-economic contexts.

4.1 Family effects

What is probably the largest area of context-related research in the sociology of education is often not recognized as such. This is the area concerned with effects on education that can be attributed to the family. Typically, 'family' means here the family of origin, so these effects are also termed 'social background' or 'social origin effects'. Though there is, in principle, a multitude of possible family characteristics, social background analyses in sociology are conventionally restricted to a small selection of hierarchical measures, specifically, parental education, income and occupational status. Social origin effects have proved to be important for explaining differences in achievement and educational attainment and have also proved to be persistent (Shavit and Blossfeld 1993). Nevertheless, long-term analyses have shown not only international differences but also historical trends in the levels of inequality (Breen et al. 2010). Following on the popular distinction between primary and secondary effects of social origin (Boudon 1974), social background effects are expressed in two ways: first, differences in performance (these differences can be linked to origin-specific socialization), and second, differences in educational transitions that can be observed even when controlling for differences in performance (these differences can be linked to origin-specific decisions). Both aspects contribute to differences in final educational attainment. Schools also have standardized views of the proper role of parents in schooling, and social class positions provide parents with unequal resources to comply with teachers' requests for parental participation (Lareau 1987). This relationship between the parental context and the school context highlights interactions between different contexts of education as a typical phenomenon.

The family is a special social context. Unlike many other contexts, it is not chosen by individuals, at least originally, and there is typically long-term exposure, with, for example, an intergenerational overlap of life courses that may exist for 50 years or more. The family context also provides various channels of intergenerational transmission. These include genetic dispositions, socialization, the transfer of resources and various choices about other contexts. However, the definition and delimitation of relevant family contexts are more ambiguous than they may seem. For instance, the parental context is not a unitary entity. Although the family is often characterized by the dominant (higher) status of one parent (Erikson 1984), it is obvious that fathers and mothers—and possibly, their specific configuration—are separate aspects of the family context and potentially have specific effects. Additionally, there has been increasing attention on combining the analysis of social origin effects with an analysis of the development of the corresponding family contexts and their natural reproduction across generations. This combination leads to comprehensive analyses of intergenerational social and educational reproduction (Mare 1997; Hillmert 2013). For example, such analyses look at not only relative background-specific chances of educational attainment but also at the number of children who attain a particular level of education.

Other lines of major research on the role of family contexts in education have focused on various aspects of family structure and composition. Topics include the negative effects of incomplete families and the role of siblings, and some forms of alternative family structures have been consistently associated with less educational success of children (Biblarz and

Raftery 1999; Härkönen et al. 2017). The death of a parent and, even more so, the separation of parents both tend to have negative effects on the educational careers of children (McLanahan and Sandefur 1994). However, the effects vary with factors such as age, and families with more education seem to be able to compensate for the adverse effect of separation (Grätz 2015).

With regard to the role of siblings, there is a well-known negative relationship between the number of siblings and the chances of educational attainment (Kuo and Hauser 1997; Steelman et al. 2003) which has frequently been attributed to the necessary dilution of resources within the family (Blake 1989; Downey 1995). However, recent studies have put doubts on a causal interpretation of this finding, pointing to problems of endogeneity and selectivity in family size and indicating that the negative relationship with educational attainment is largely a consequence of negative birth-order effects on education (Black et al. 2005). Moreover, the relationship between family size and chances of education varies considerably internationally and historically with a country's level of economic development (Maralani 2008). This is another example of relevant interactions between various context levels.

The role of the extended family or kinship in terms of educational outcomes is rarely analysed, and 'family effects' are often implicitly equated with the influences of parents—and sometimes siblings. From a conceptual viewpoint, this also means that the size and definitional delimitation of the relevant family context are rarely discussed when using family background as a predictor of educational outcomes. Recent research has started to extend the family context over time towards at least three generations, looking at social class mobility as well as education (Mare 2011; Anderson et al. 2018). However, such analyses are demanding in methodological terms (Breen 2018). Additionally, as early as the late 1960s the Wisconsin model of social stratification emphasized the role of 'significant others', social contacts who create relatively stable educational aspirations by approaching individuals with specific expectations and by providing role models (Sewell at al. 1969). These contacts can go far beyond the nuclear family.

4.2 Peer effects

Apart from family and kinship, friends and peer groups represent the most important micro-level social contexts in early socialization. In schools, students are not isolated individuals with separate relationships to teachers, but rather, students influence and socialize each other—potentially in both positive and negative ways—and they may provide alternative status orders and (sub-)cultures (Coleman 1961; Willis 1977). Peer effects include social comparisons, and reference group effects in education have become known as the 'big-fish-little-pond' effect (Marsh 2005), which denotes the observation that individual student motivation is increased by lower-performing peers.

Conceptually, peer effects are probably one of the clearest examples of contexts as aggregates (cf. Wilson 1959; Blau 1960), particularly when they refer to interrelations among the *same* attributes on different analytical levels (e.g. a student's own academic motivation and the fellow students' academic motivation). This also means, however, that the identification of peer effects is particularly demanding, and the risk of interpreting spurious relationships in substantive terms is high (Angrist 2014). The first problem is that peers typically self-select into groups in an unobserved way. Frequently, there is positive selection in that similar people join the same group. This selection is likely to cause substantial bias in the estimated magnitude of peer effects. The second problem is the problem of simultaneity (or 'reflection'). In a peer network, a single student's outcome affects his peers' mean outcome and vice versa. From pure observation—meaning without additional information—it cannot be decided whether individual group members' behaviours are, indeed, affected by group behaviour or whether group behaviour is the aggregation of the behaviour of

individuals who have selectively formed the group (Manski 1993). Finally, peer outcomes may themselves be affected by unobserved background characteristics.

Still, studies that make use of external variation have found evidence that students are affected by the achievement levels of their peers in the classroom (Hoxby 2000). Positive effects among high-ability students appear to be greater than effects among low-ability students, and the impact on behavioural outcomes beyond academic aspects seems to be more significant than peer influences on achievement (Sacerdote 2011b). For an overview of the economic literature on peer effects, see Epple and Romano (2011). Peer groups can be very heterogeneous and informal, but for a variety of reasons, not the least of which is measurement, many quantitative studies of peer effects focus on peers in the classroom, the school or the dorm.

4.3 Classroom, school and teacher effects

For school-age children, peer groups are closely linked with schools and their specific student composition. Respective research designs are often identical, although the notion of peer effects seems to suggest a closer link to social interaction than to the effects of classroom composition (Thrupp et al. 2002). Further, institutional characteristics such as tracking and ability grouping (Kulik and Kulik 1982) deliberately affect student composition in the classroom. Also, similar to the case with peer networks, classroom composition can be a direct consequence of individual strategic choices, although social inequalities resulting from these choices do not necessarily reflect collective strategies of social classes (Raftery and Hout 1993).

However, the relevance of the school context goes beyond composition and includes teachers and their behaviours as well as school infrastructure. School effectiveness studies that have explicitly linked educational outcomes with contextual effects have been predominantly concerned with the impact of the organizational context (i.e. the context of the school or the specific class). These context levels have proved to be relevant for explaining educational aspirations, chances and performance differences, and research has demonstrated that both the institutional setting of schools and the composition of individual classes have an impact on educational outcomes.

More recent studies have underlined the predominant relevance of the classroom level for student achievement, with a large proportion of the variance being explained by teachers' abilities and practices (Hattie 2009). Consequently, there are close links to research on teachers' effectiveness, although this line of research is—once again—not necessarily identified with 'context' research. For an overview of school effectiveness research, see Teddlie and Reynolds (2000), who distinguished various phases of research where the initial phase followed the studies of Coleman et al. (1966) and Jencks et al. (1972) with the common understanding that schools had little effect on student outcomes compared to the effects of ability and social background. Studies since the 1980s have brought not only methodological innovations, such as multilevel modelling, but have also presented a more differentiated picture about the existence and stability of school effects as well as their relevance for different types of students. Since the 1990s, there has also been an increasing focus on the explanation of these differences (see also Scheerens and Bosker 1997). Recent developments have been characterized by a marked internationalization of the field and an increasing connection between school effectiveness and efforts towards school improvement.

Mechanisms of teacher effects are manifold. Classroom management (Kunter et al. 2007) has proved to be a central mechanism, but teacher effects go beyond teaching competences and styles. For example, the *Pygmalion* effect (Rosenthal and Jacobson 1968) describes the observation that teachers' higher expectations for particular students lead to better

performance of these students, meaning they represent a self-fulfilling prophecy (Merton 1948). In addition, cultural differences may complicate interactions when teachers and students come from different (national) cultures (Hofstede 1986).

Teachers' judgements are not based purely on performance but may well be influenced by information about other characteristics, such as the student's social background; in other words, teachers may draw on information about other context levels so that different context levels interact with each other. Another interaction of the school context, in this case with a higher-level institutional context, is represented by the fact that only some educational systems may require teachers to classify students at specific points in time (e.g. to give recommendations for school tracks). Labelling by teachers also vividly illustrates another general point—social context effects in education do not work out mechanically, but rather, they are typically created and perpetuated by human actors through their social actions and interactions (cf. Schwalbe et al. 2000).

Most organizational context research in education has been on schools, and other parts of the educational system—kindergarten, firms as training sites, etc.—have been less studied as contexts, although similar mechanisms can be expected.

4.4 Neighbourhood and regional effects

Not least of all due to a revived interest in geographical patterns of marked social inequalities (e.g. Wilson 1987; Sharkey and Faber 2014), a large number of recent empirical studies have analysed spatially structured context effects on behaviour, including neighbourhood effects (for recent reviews, see Galster 2008; van Ham et al. 2012). These have also included effects on education. Neighbourhood characteristics can influence individual educational outcomes through various mechanisms, such as collective socialization, social norms and controls, and the perception of opportunities. In practice, however, more detailed information is often missing about relevant aspects such as individual mobility or self-selection into neighbourhoods, duration of exposure and intergenerational transmission of contexts.

Building upon early work of the Chicago School in sociology (Park et al. 1925), neighbourhoods have been intensively studied in the United States, in particular, where studies conducted by the Wisconsin Group showed positive, albeit weak, correlations between neighbourhood status and college enrolment plans (Sewell and Armer 1966). Interest in neighbourhood effects rose again in the late 1980s, and in the more recent research tradition, the focus has been predominantly on the negative consequences of living in disadvantaged neighbourhoods (Mayer and Jencks 1989; Wacquant and Wilson 1989). US and UK studies have confirmed the effects of neighbourhood composition on educational performance (Garner and Raudenbush 1991; Ainsworth 2002; Leventhal and Brooks-Gunn 2004), educational aspirations (Owens 2010) and graduation rates (Brooks-Gunn et al. 1993; Wodtke et al. 2011; Rendón 2014). Studies in various European countries have also repeatedly found effects of a neighbourhood's social composition on educational attainment. However, effects in continental Europe tend to be weaker than in comparable US or UK contexts (Brännström 2008; Sykes and Musterd 2011; Brattbakk and Wessel 2013; Nieuwenhuis et al. 2015; Zangger 2015). It has been argued that extensive social welfare systems are likely to reduce the differences in neighbourhood conditions so that neighbourhood effects are harder to identify (Ellen and Turner 1997; Friedrichs et al. 2003). In local studies on educational achievement and educational transitions, no negative effects of deprived neighbourhoods were found; however, positive effects of particularly favourable residential contexts were (Kauppinen 2008). It has also been shown in European contexts that neighbourhood influences are mediated through the closely associated context levels of schools and school classes (Brännström 2008).

Going beyond small-scale neighbourhoods, the link between education and conditions in larger-scale regional areas was already a topic in early research on educational inequalities. The question of regional provision of an educational infrastructure played an important role, especially before educational expansion, when there were notable differences in educational opportunities between urban and rural areas. Research in this field looked at the socio-cultural and socio-economic population composition of residential areas and regions and stressed the relevance of regional contexts for educational aspirations (Sewell and Orenstein 1965) as well as for transitions. When school infrastructures began to expand in the 1960s and regional disparities became less important, the connection between education and region temporarily received less attention from researchers. However, more recent studies have once again focused on the impact of the regional educational infrastructure as well as the regional socio-economic situation, looking at educational aspirations and decisions of adolescents during or at the end of compulsory schooling. The regional provision of infrastructure in higher education has been associated with the accessibility and reachability of colleges and universities, often operationalized as the distance to the next institution of higher education. Young adults have proved to be less likely to enrol (or to aspire to do so) the farther this distance is (Tinto 1973; Sá et al. 2004; Frenette 2006; Finger 2016). Again, inter-group differences can be observed, as school graduates from lower socio-economic status families and students with fewer abilities seem to be particularly deterred from going farther distances (Eliasson 2006; Cullinan et al. 2013). However, there has been little research combining measures of accessibility and institutional quality or socio-structural characteristics of a region (Turley 2009).

Another line of empirical research has focused on the effects of regional labour market characteristics. The majority of these studies can be found in economics, where—typically on the basis of the human-capital model—the perceived insurance against the risk of unemployment is supposed to foster individual investment in further education; those with already higher levels of education are less affected by rises in local unemployment (Micklewright et al. 1990; Lauer 2002). High unemployment levels also tend to discourage young adults from entering the labour market (the ‘discouraged worker effect’; Raffe and Wilms 1989). Staying in the educational system during difficult times in the labour market and in regions of high unemployment prevents individuals from becoming unemployed, at least in the short run. However, poor labour market conditions might also accelerate fast entries into the labour market as high unemployment increases the number of affected households such that individuals may be forced to compensate for losses in family income. The focus of empirical studies in this research field has been on regional differences as well as business-cycle developments and their impact on young adults’ decisions and transitions at the end of compulsory schooling. Empirical evidence that combines individual-level information on participation in post-compulsory education with macro-level information on labour market conditions has been rather ambiguous in terms of conclusions; some studies have failed to find any influence, whereas others have found a weak impact of local labour market conditions on post-compulsory participation (Rice 1999; Rephann 2002; Tumino 2013). Studies have also confirmed group-specific variation in the effect of local labour market contexts (e.g. Clark 2011; Meschi et al. 2011; Hillmert et al. 2017a).

4.5 Effects of institutional contexts

In studies of educational contexts, the term ‘institutional’ is often used interchangeably with ‘organizational’, such as when talking about specific schools as institutions, but in a narrow sense, ‘institutional’ is concerned with educational systems which are typically located on the national (or federal-state) level. It is, therefore, no surprise that this perspective is closely associated with nationally comparative research. In this research tradition, institutional differences have been described in qualitative rather than quantitative terms. Various classifications have been proposed for grouping educational systems, including the degree of openness and competition (Turner 1960); however, in empirical research, three analytical

dimensions have become prominent: the level of tracking in secondary education; the vocational specificity of skill acquisition; and the standardization of regulations and examinations (Allmendinger 1989; Shavit and Müller 1998). These institutional characteristics have proved to be consequential for a wide range of educational outcomes, such as educational aspirations, achievement and social selectivity in educational attainment (Buchmann and Dalton 2002; Bol and van de Werfhorst 2013).

Extending the scope of context even further, there are also more systemic perspectives which embed the educational system into a wider range of institutions. The perspective of political economy emphasizes typical, historically evolved links between various societal subsystems, including education, the labour market, the sphere of production and the financial system. A special emphasis is on the role of firms and collective actors, in particular, trade unions, employers' associations and the state (Hall and Soskice 2001; Thelen 2004; Busemeyer and Trampusch 2012). Again, significant consequences can be observed in different political-economic contexts for individual educational careers, youth transitions and employment patterns (e.g. Hillmert 2002; DiPrete et al. 2017).

5. Conclusions

Aside from the major analytical problem of separating context effects from the self-selection of individuals into particular contexts, the main challenge in practical context-oriented research is the conceptual and analytical distinction between different contexts and between the corresponding effects at these context levels. This places high demands on the availability of data on multiple contexts. In practice, these demands are often not met. Technically, this means that reported values for estimated context effects at a specific level are likely to suffer from either under- or overestimation. However, the very idea of a clear-cut separation between particular contexts—such as a school and a school-based peer group—and hence, the identifiability of pure level-specific context effects, may often actually be artificial. Moreover, various context levels tend to interact with each other, and seemingly universal effects at specific context levels have repeatedly proved to depend on specific conditions at other context levels.

There is a wide range of analytical tools for measuring context effects, and there is also a good chance that approaches applied to different topics may complement or even cross-fertilize each other. Good examples are the aspects of time and space, which have been made explicit in a number of specific studies but that are relevant for a much broader range of topics. For example, the duration of exposure to specific context conditions plays a prominent role for assessing context effects in health-related research, but it is also certainly relevant for any research that deals with socialization in social contexts and the effects on educational outcomes. Likewise, there has been increasing attention to the question of how to define the adequate size of relevant geographical contexts, but there is still much less explicit attention on the question of how to delimit relevant social contexts, such as the family or kinship context, in a specific study. The correct operationalization of contexts requires a good theoretical understanding of the relevant mediating mechanisms—typically including social interactions—that link context conditions with individual behaviours.

This argument points to the general importance of theoretical reasoning in the analysis of contextual influences, and precisely because the data situation is often unsatisfactory, analyses of social contexts require a sound theoretical basis. Moreover, there is often a need to draw upon complementary existing or self-conducted empirical research that explicitly examines relevant intervening mechanisms and their temporal and spatial patterns. Such research may be found in areas well beyond the sociology of education. In any case, it is essential in context research to tailor the analytical strategy towards the specific research question. Typical restrictions such as limited availability of high-definition context data or only rough localization of the respective individuals—which is necessary for linking to context

information—may often suggest a pragmatic operationalization that follows the available data format. It should be clear, however, that any operationalization implicitly represents a specific definition of contexts and context characteristics. The results may be very sensitive to these definitions, and therefore, as far as possible, such decisions should not be made in an ad-hoc way.

Notwithstanding these difficulties, however, context research in education still has considerable potential, in both conceptual and empirical respects.

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